QA 52 - Juvenile Rheumatoid Arthritis (JRA)

Question:

I have a 4 year old boy on WIC who has grown only ¼" and gained 1 pound in the last 7 months. His wt/ht is at 50th percentile, ht/age below 5th percentile, and wt/age at 10th percentile. He only recently began walking. His legs appear too short for his body. A recent Hct was 37.0%.

His adoptive mother reports PMH: pediatric rheumatoid arthritis, but I could not find this Dx in his medical records. His medical records do contain the following diagnoses: microcytic hypochromic anemia, thrombocytosis, neutrophils with reactive features and osteomyelitis. The EKG was normal. No evidence of histiocytosis X (I honestly don't know what this is) was found by the MD.

As a Nutritionist, what might I be able to do to help this child gain in stature.

ANSWER:

This is a difficult child to evaluate because of the uncertainty of the diagnosis, but from the symptoms and description of the illness, it appears that this adopted child has some subtype of Juvenile Rheumatoid Arthritis (JRA). A common constitutional symptom of JRA is a delay in walking as mentioned in the question. Other symptoms are: fever, anorexia, weight loss, fatigue and failure to grow. There is a high occurrence of protein-energy malnutrition in JRA patients because chronic inflammatory process causes weight loss from lean body mass such as skeletal muscle. [1]

Poor growth velocity or short stature can be caused by the inflammatory process of the JRA and medications such as steroids which causes fatigue and poor appetite. There is no medication listed in the question for this patient, but the dietitian seeing the child should ask if the child is on steroids, or has been on steroids, and the duration of use and dosage. Steroids are often used to treat JRA and have growth suppressing activity.

In a study conducted at the Pediatric Rheumatology Center at the Children's Hospital in Cincinnati, growth velocity was improved with aggressive nutrition intervention through nocturnal NG tube feedings. The seven children enrolled in the study had poor linear growth (0.15 cm/month avg growth) and poor weight gain (-0.22 kg/month). After six months on nocturnal tube feedings, the average growth velocity was 1.62 cm/month and weight gain velocity was 0.8 kg/month. [3]

Other suggestions to improve nutritional status are:

1. May need to correct the anemia. Anemia is common in children with active arthritis due to chronic disease. Check serum ferritin to assess total body iron stores before supplementing with iron.
2. Assess total calorie, protein and nutrient intake. If the patient's calorie, protein and nutrient intake is below 75-80% of estimated needs and DRI's, supplements and other high calorie ideas should be considered. Supplement with vitamins depending upon steroid use and other meds.
3. Consider nocturnal TF for reversal of growth failure depending upon outcome of PO calorie intake and severity of growth failure.

References:

1) Mascioli, E.A., Blackburn, G.L., Nutrition and Rheumatic Diseases. In: Kelly, W.N., Harris, E.D., Ruddy, S., Sledge, C.B., eds. Textbook of Rheumatology. 2nd ed. Philadelphia: W.B. Saunders; 1985.
2) Henderson, C.J., Lovell, D.J., Assessment of Protein-Energy Malnutrition in Children and Adolescents with Juvenile Rheumatoid Arthritis. Arthritis Care Res. 1989; 2:108.
3) Lovell, D.J., Gregg, D., Heubi, J.E. et al, Nutritional Status in Juvenile Rheumatoid Arthritis (JRA)-an interim report. Arthritis Rheum. 1986; 29 (suppl):S67.